

528 Rec PCT/PTO 26 DEC 2000

SEQUENCE LISTING

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ALLIEL, Patrick
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RIEGER, Francois<120> NUCLEIC SEQUENCE AND DEDUCED PROTEIN SEQUENCE FAMILY
WITH HUMAN ENDOGENOUS RETROVIRAL MOTIFS,
AND THEIR USES.

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<213> Homo sapiens

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<212> ADN
<213> Homo sapiens

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Lys Glu Leu Phe His Pro Cys Asp Met Val Leu Val Lys Ser Leu Pro
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Met	Cys	Phe	Leu	Ser	Phe	Leu	Val	Pro	Pro	Met	Thr	Ile	Tyr	Thr	Glu	
			420					425					430			
caa	gat	tta	tac	agt	tat	gtc	ata	tct	aag	ccc	cgc	aac	aaa	aga	gta	1344
Gln	Asp	Leu	Tyr	Ser	Tyr	Val	Ile	Ser	Lys	Pro	Arg	Asn	Lys	Arg	Val	
		435					440					445				
ccc	att	ctt	cct	ttt	gtt	ata	gga	gca	gga	gtg	cta	ggt	gca	cta	ggt	1392
Pro	Ile	Leu	Pro	Phe	Val	Ile	Gly	Ala	Gly	Val	Leu	Gly	Ala	Leu	Gly	
	450					455					460					
act	ggc	att	ggc	ggt	atc	aca	acc	tct	act	cag	ttc	tac	tac	aaa	cta	1440
Thr	Gly	Ile	Gly	Gly	Ile	Thr	Thr	Ser	Thr	Gln	Phe	Tyr	Tyr	Lys	Leu	
465					470					475					480	
tct	caa	gaa	cta	aat	ggg	gac	atg	gaa	cgg	gtc	gcc	gac	tcc	ctg	gtc	1488
Ser	Gln	Glu	Leu	Asn	Gly	Asp	Met	Glu	Arg	Val	Ala	Asp	Ser	Leu	Val	
				485					490					495		
acc	ttg	caa	gat	caa	ctt	aac	tcc	cta	gca	gca	gta	gtc	ctt	caa	aat	1536
Thr	Leu	Gln	Asp	Gln	Leu	Asn	Ser	Leu	Ala	Ala	Val	Val	Leu	Gln	Asn	
			500					505					510			
cga	aga	gct	tta	gac	ttg	cta	acc	gct	gaa	aga	ggg	gga	acc	tgt	tta	1584
Arg	Arg	Ala	Leu	Asp	Leu	Leu	Thr	Ala	Glu	Arg	Gly	Gly	Thr	Cys	Leu	
		515					520					525				
ttt	tta	ggg	gaa	gaa	tgc	tgt	tat	tat	gtt	aat	caa	tcc	gga	atc	gtc	1632
Phe	Leu	Gly	Glu	Glu	Cys	Cys	Tyr	Tyr	Val	Asn	Gln	Ser	Gly	Ile	Val	
	530					535					540					
act	gag	aaa	gtt	aaa	gaa	att	cga	gat	cga	ata	caa	cgt	aga	gca	gag	1680
Thr	Glu	Lys	Val	Lys	Glu	Ile	Arg	Asp	Arg	Ile	Gln	Arg	Arg	Ala	Glu	
545					550					555					560	
gag	ctt	cga	aac	act	gga	ccc	tgg	ggc	ctc	ctc	agc	caa	tgg	atg	ccc	1728
Glu	Leu	Arg	Asn	Thr	Gly	Pro	Trp	Gly	Leu	Leu	Ser	Gln	Trp	Met	Pro	
				565					570					575		
tgg	att	ctc	ccc	ttc	tta	gga	cct	cta	gca	gct	ata	ata	ttg	cta	ctc	1776
Trp	Ile	Leu	Pro	Phe	Leu	Gly	Pro	Leu	Ala	Ala	Ile	Ile	Leu	Leu	Leu	
			580					585					590			
ctc	ttt	gga	ccc	tgt	atc	ttt	aac	ctc	ctt	gtt	aac	ttt	gtc	tct	tcc	1824
Leu	Phe	Gly	Pro	Cys	Ile	Phe	Asn	Leu	Leu	Val	Asn	Phe	Val	Ser	Ser	
		595					600					605				

18

aga atc gaa gct gta aaa cta caa atg gag ccc aag atg cag tcc aag 1872
 Arg Ile Glu Ala Val Lys Leu Gln Met Glu Pro Lys Met Gln Ser Lys
 610 615 620

act aag atc tac cgc aga ccc ctg gac cgg cct gct agc cca cga tct 1920
 Thr Lys Ile Tyr Arg Arg Pro Leu Asp Arg Pro Ala Ser Pro Arg Ser
 625 630 635 640

gat gtt aat gac atc aaa ggc acc cct cct gag gaa atc tca gct gca 1968
 Asp Val Asn Asp Ile Lys Gly Thr Pro Pro Glu Glu Ile Ser Ala Ala
 645 650 655

caa cct cta cta cgc ccc aat tca gca gga agc agt tag agc ggt cgt 2016
 Gln Pro Leu Leu Arg Pro Asn Ser Ala Gly Ser Ser Ser Gly Arg
 660 665 670

cgg cca acc tcc cca aca gca ctt agg ttt tcc tgt tga 2055
 Arg Pro Thr Ser Pro Thr Ala Leu Arg Phe Ser Cys
 675 680 685

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 Gln Gln Val Leu Lys Thr Leu Gln Gly Thr Tyr Pro
 20 25

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 <211> 55
 <212> PRT
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 Glu Glu Gly Lys Glu Leu Phe His Pro Cys Asp Met Val Leu Val Lys
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 20 25 30
 Tyr Pro Val Ile Leu Ser Thr Pro Thr Ala Val Lys Val Ala Gly Val
 35 40 45
 Glu Ser Trp Ile His His Thr
 50 55

<210> 25
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 <212> PRT
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19

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Val Lys Ser Trp Ile Leu Pro Lys Glu Pro Glu Asn Pro Gly Asp Asn
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Ala Ser Tyr Ser Cys Glu Pro Leu Glu Asp Leu Arg Leu Leu Phe Lys
 20 25 30

Gln Gln Pro Gly Gly Lys
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<211> 540

<212> PRT

<213> Homo sapiens

<400> 26

Ile Pro Met Ala Leu Pro Tyr His Ile Phe Leu Phe Thr Val Leu Leu
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Pro Ser Phe Thr Leu Thr Ala Pro Pro Pro Cys Arg Cys Met Thr Ser
 20 25 30

Ser Ser Pro Tyr Gln Glu Phe Leu Trp Arg Met Gln Arg Pro Gly Asn
 35 40 45

Ile Asp Ala Pro Ser Tyr Arg Ser Leu Ser Lys Gly Thr Pro Thr Phe
 50 55 60

Thr Ala His Thr His Met Pro Arg Asn Cys Tyr His Ser Ala Thr Leu
 65 70 75 80

Cys Met His Ala Asn Thr His Tyr Trp Thr Gly Lys Met Ile Asn Pro
 85 90 95

Ser Cys Pro Gly Gly Leu Gly Val Thr Val Cys Trp Thr Tyr Phe Thr
 100 105 110

Gln Thr Gly Met Ser Asp Gly Gly Gly Val Gln Asp Gln Ala Arg Glu
 115 120 125

Lys His Val Lys Glu Val Ile Ser Gln Leu Thr Arg Val His Gly Thr
 130 135 140

Ser Ser Pro Tyr Lys Gly Leu Asp Leu Ser Lys Leu His Glu Thr Leu
 145 150 155 160

Arg Thr His Thr Arg Leu Val Ser Leu Phe Asn Thr Thr Leu Thr Gly
 165 170 175

Leu His Glu Val Ser Ala Gln Asn Pro Thr Asn Cys Trp Ile Cys Leu
 180 185 190

Pro Leu Asn Phe Arg Pro Tyr Val Ser Ile Pro Val Pro Glu Gln Trp
 195 200 205

Asn Asn Phe Ser Thr Glu Ile Asn Thr Thr Ser Val Leu Val Gly Pro
 210 215 220

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Leu Val Ser Asn Leu Glu Ile Thr His Thr Ser Asn Leu Thr Cys Val
 225 230 235 240
 Lys Phe Ser Asn Thr Thr Tyr Thr Thr Asn Ser Gln Cys Ile Arg Trp
 245 250 255
 Val Thr Pro Pro Thr Gln Ile Val Cys Leu Pro Ser Gly Ile Phe Phe
 260 265 270
 Val Cys Gly Thr Ser Ala Tyr Arg Cys Leu Asn Gly Ser Ser Glu Ser
 275 280 285
 Met Cys Phe Leu Ser Phe Leu Val Pro Pro Met Thr Ile Tyr Thr Glu
 290 295 300
 Gln Asp Leu Tyr Ser Tyr Val Ile Ser Lys Pro Arg Asn Lys Arg Val
 305 310 315 320
 Pro Ile Leu Pro Phe Val Ile Gly Ala Gly Val Leu Gly Ala Leu Gly
 325 330 335
 Thr Gly Ile Gly Gly Ile Thr Thr Ser Thr Gln Phe Tyr Tyr Lys Leu
 340 345 350
 Ser Gln Glu Leu Asn Gly Asp Met Glu Arg Val Ala Asp Ser Leu Val
 355 360 365
 Thr Leu Gln Asp Gln Leu Asn Ser Leu Ala Ala Val Val Leu Gln Asn
 370 375 380
 Arg Arg Ala Leu Asp Leu Leu Thr Ala Glu Arg Gly Gly Thr Cys Leu
 385 390 395 400
 Phe Leu Gly Glu Glu Cys Cys Tyr Tyr Val Asn Gln Ser Gly Ile Val
 405 410 415
 Thr Glu Lys Val Lys Glu Ile Arg Asp Arg Ile Gln Arg Arg Ala Glu
 420 425 430
 Glu Leu Arg Asn Thr Gly Pro Trp Gly Leu Leu Ser Gln Trp Met Pro
 435 440 445
 Trp Ile Leu Pro Phe Leu Gly Pro Leu Ala Ala Ile Ile Leu Leu Leu
 450 455 460
 Leu Phe Gly Pro Cys Ile Phe Asn Leu Leu Val Asn Phe Val Ser Ser
 465 470 475 480
 Arg Ile Glu Ala Val Lys Leu Gln Met Glu Pro Lys Met Gln Ser Lys
 485 490 495
 Thr Lys Ile Tyr Arg Arg Pro Leu Asp Arg Pro Ala Ser Pro Arg Ser
 500 505 510
 Asp Val Asn Asp Ile Lys Gly Thr Pro Pro Glu Glu Ile Ser Ala Ala
 515 520 525

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21

Gln Pro Leu Leu Arg Pro Asn Ser Ala Gly Ser Ser
530 535 540

<210> 27
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<400> 27
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1 5 10 15

<210> 28
<211> 1080
<212> ADN
<213> Homo sapiens

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Thr Ser Phe Val Glu Lys Ala Asn Gly Val Lys Cys His Lys Tyr Lys
1 5 10 15

ctt tct ttt cat taa gag aca act cac aat tat gta aaa agt gtg att 96
Leu Ser Phe His Glu Thr Thr His Asn Tyr Val Lys Ser Val Ile
20 25 30

tat gcc cta cag gaa gcc ttc aga gtc tac ctc cct atc cca gca tcc 144
Tyr Ala Leu Gln Glu Ala Phe Arg Val Tyr Leu Pro Ile Pro Ala Ser
35 40 45

ccg act cct tcc cca act aat aag gac ccc cct tca acc caa atg gtc 192
Pro Thr Pro Ser Pro Thr Asn Lys Asp Pro Pro Ser Thr Gln Met Val
50 55 60

caa aag gag ata gac aaa agg gta aac agt gaa cca aag agt gcc aat 240
Gln Lys Glu Ile Asp Lys Arg Val Asn Ser Glu Pro Lys Ser Ala Asn
65 70 75 80

att ccc caa tta tga ccc ctc caa gca gtg gga gga aga gaa ttc ggc 288
Ile Pro Gln Leu Pro Leu Gln Ala Val Gly Gly Arg Glu Phe Gly
85 90 95

cca gcc aga gtg cat gtg cct ttt tct ctc cca gac tta aag caa ata 336
Pro Ala Arg Val His Val Pro Phe Ser Leu Pro Asp Leu Lys Gln Ile
100 105 110

aaa aca gac tta ggt aaa ttc tca gat aac cct gat ggc tat att gat 384
Lys Thr Asp Leu Gly Lys Phe Ser Asp Asn Pro Asp Gly Tyr Ile Asp
115 120 125

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22

gtt tta caa ggg tta gga caa ttc ttt gat ctg aca tgg aga gat ata	432
Val Leu Gln Gly Leu Gly Gln Phe Phe Asp Leu Thr Trp Arg Asp Ile	
130 135 140	
atg tca ctg cta aat cag aca cta acc cca aat gag aga agt gcc acc	480
Met Ser Leu Leu Asn Gln Thr Leu Thr Pro Asn Glu Arg Ser Ala Thr	
145 150 155 160	
ata act gca gcc tga gag ttt ggc gat ctc tgg tat ctc agt cag gtc	528
Ile Thr Ala Ala Glu Phe Gly Asp Leu Trp Tyr Leu Ser Gln Val	
165 170 175	
aat gat agg atg aca aca gag gaa aga gaa tga ttc ccc aca ggc cag	576
Asn Asp Arg Met Thr Thr Glu Glu Arg Glu Phe Pro Thr Gly Gln	
180 185 190	
cag gca gtt ccc agt cta gac cct cat tgg gac aca gaa tca gaa cat	624
Gln Ala Val Pro Ser Leu Asp Pro His Trp Asp Thr Glu Ser Glu His	
195 200 205	
gga gat tgg tgc tgc aga cat ttg cta act tgt gtg cta gaa gga cta	672
Gly Asp Trp Cys Cys Arg His Leu Leu Thr Cys Val Leu Glu Gly Leu	
210 215 220	
agg aaa act agg aag aag tct atg aat tac tca atg atg tcc acc ata	720
Arg Lys Thr Arg Lys Lys Ser Met Asn Tyr Ser Met Met Ser Thr Ile	
225 230 235 240	
aca cag gga agg gaa gaa aat cct act gcc ttt ctg gag aga cta agg	768
Thr Gln Gly Arg Glu Glu Asn Pro Thr Ala Phe Leu Glu Arg Leu Arg	
245 250 255	
gag gca ttg agg aag cgt gcc tct ctg tca cct gac tct tct gaa ggc	816
Glu Ala Leu Arg Lys Arg Ala Ser Leu Ser Pro Asp Ser Ser Glu Gly	
260 265 270	
caa cta atc tta aag cgt aag ttt atc act cag tca gct gca gac att	864
Gln Leu Ile Leu Lys Arg Lys Phe Ile Thr Gln Ser Ala Ala Asp Ile	
275 280 285	
aga aaa aaa ctt caa aag tct gcc gta ggc ccg gag caa aac tta gaa	912
Arg Lys Lys Leu Gln Lys Ser Ala Val Gly Pro Glu Gln Asn Leu Glu	
290 295 300	
acc cta ttg aac ttg gca acc tcg gtt ttt tat aat aga gat cag gag	960
Thr Leu Leu Asn Leu Ala Thr Ser Val Phe Tyr Asn Arg Asp Gln Glu	
305 310 315 320	
gag cag gcg gaa cag gac aaa cgg gat taa aaa aaa ggc cac cgc ttt	1008
Glu Gln Ala Glu Gln Asp Lys Arg Asp Lys Lys Lys Gly His Arg Phe	
325 330 335	
agt cat gac cct cag gca agt gga ctt tgg agg ctc tgg aaa agg gaa	1056
Ser His Asp Pro Gln Ala Ser Gly Leu Trp Arg Leu Trp Lys Arg Glu	
340 345 350	

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23

aag ctg ggc aaa ttg aat gcc taa
 Lys Leu Gly Lys Leu Asn Ala
 355 360

1080

<210> 29
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 <212> PRT
 <213> Homo sapiens

<400> 29
 Thr Ser Phe Val Glu Lys Ala Asn Gly Val Lys Cys His Lys Tyr Lys
 1 5 10 15
 Leu Ser Phe His
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<210> 30
 <211> 63
 <212> PRT
 <213> Homo sapiens

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 Ala Phe Arg Val Tyr Leu Pro Ile Pro Ala Ser Pro Thr Pro Ser Pro
 20 25 30
 Thr Asn Lys Asp Pro Pro Ser Thr Gln Met Val Gln Lys Glu Ile Asp
 35 40 45
 Lys Arg Val Asn Ser Glu Pro Lys Ser Ala Asn Ile Pro Gln Leu
 50 55 60

<210> 31
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 <212> PRT
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 20 25 30
 Lys Phe Ser Asp Asn Pro Asp Gly Tyr Ile Asp Val Leu Gln Gly Leu
 35 40 45
 Gly Gln Phe Phe Asp Leu Thr Trp Arg Asp Ile Met Ser Leu Leu Asn
 50 55 60
 Gln Thr Leu Thr Pro Asn Glu Arg Ser Ala Thr Ile Thr Ala Ala
 65 70 75

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24

<210> 32
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 Thr Glu Glu Arg Glu
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<210> 33
 <211> 142
 <212> PRT
 <213> Homo sapiens

<400> 33
 Phe Pro Thr Gly Gln Gln Ala Val Pro Ser Leu Asp Pro His Trp Asp
 1 5 10 15
 Thr Glu Ser Glu His Gly Asp Trp Cys Cys Arg His Leu Leu Thr Cys
 20 25 30
 Val Leu Glu Gly Leu Arg Lys Thr Arg Lys Lys Ser Met Asn Tyr Ser
 35 40 45
 Met Met Ser Thr Ile Thr Gln Gly Arg Glu Glu Asn Pro Thr Ala Phe
 50 55 60
 Leu Glu Arg Leu Arg Glu Ala Leu Arg Lys Arg Ala Ser Leu Ser Pro
 65 70 75 80
 Asp Ser Ser Glu Gly Gln Leu Ile Leu Lys Arg Lys Phe Ile Thr Gln
 85 90 95
 Ser Ala Ala Asp Ile Arg Lys Lys Leu Gln Lys Ser Ala Val Gly Pro
 100 105 110
 Glu Gln Asn Leu Glu Thr Leu Leu Asn Leu Ala Thr Ser Val Phe Tyr
 115 120 125
 Asn Arg Asp Gln Glu Glu Gln Ala Glu Gln Asp Lys Arg Asp
 130 135 140

<210> 34
 <211> 29
 <212> PRT
 <213> Homo sapiens

<400> 34
 Lys Lys Gly His Arg Phe Ser His Asp Pro Gln Ala Ser Gly Leu Trp
 1 5 10 15

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Arg Leu Trp Lys Arg Glu Lys Leu Gly Lys Leu Asn Ala
20 25

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<212> PRT
<213> Homo sapiens
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Gln	Gln	Val	Leu	Lys	Thr	Leu	Gln	Gly	Thr	Tyr	Pro	Xaa	Glu	Glu	Gly	
			20					25					30			
Lys	Glu	Leu	Phe	His	Pro	Cys	Asp	Met	Val	Leu	Val	Lys	Ser	Leu	Pro	
		35					40					45				
Ser	Asn	Ser	Pro	Ser	Leu	Asp	Thr	Ser	Trp	Glu	Gly	Pro	Tyr	Pro	Val	
	50					55					60					
Ile	Leu	Ser	Thr	Pro	Thr	Ala	Val	Lys	Val	Ala	Gly	Val	Glu	Ser	Trp	
65					70					75					80	
Ile	His	His	Thr	Xaa	Val	Lys	Ser	Trp	Ile	Leu	Pro	Lys	Glu	Pro	Glu	
				85					90					95		
Asn	Pro	Gly	Asp	Asn	Ala	Ser	Tyr	Ser	Cys	Glu	Pro	Leu	Glu	Asp	Leu	
			100					105					110			
Arg	Leu	Leu	Phe	Lys	Gln	Gln	Pro	Gly	Gly	Lys	Xaa	Leu	Lys	Ser	Xaa	
		115					120					125				
Ile	Pro	Met	Ala	Leu	Pro	Tyr	His	Ile	Phe	Leu	Phe	Thr	Val	Leu	Leu	
	130					135					140					
Pro	Ser	Phe	Thr	Leu	Thr	Ala	Pro	Pro	Pro	Cys	Arg	Cys	Met	Thr	Ser	
145					150					155					160	
Ser	Ser	Pro	Tyr	Gln	Glu	Phe	Leu	Trp	Arg	Met	Gln	Arg	Pro	Gly	Asn	
				165					170					175		
Ile	Asp	Ala	Pro	Ser	Tyr	Arg	Ser	Leu	Ser	Lys	Gly	Thr	Pro	Thr	Phe	
			180					185					190			
Thr	Ala	His	Thr	His	Met	Pro	Arg	Asn	Cys	Tyr	His	Ser	Ala	Thr	Leu	
		195					200					205				
Cys	Met	His	Ala	Asn	Thr	His	Tyr	Trp	Thr	Gly	Lys	Met	Ile	Asn	Pro	
	210					215					220					
Ser	Cys	Pro	Gly	Gly	Leu	Gly	Val	Thr	Val	Cys	Trp	Thr	Tyr	Phe	Thr	
225					230					235					240	
Gln	Thr	Gly	Met	Ser	Asp	Gly	Gly	Gly	Val	Gln	Asp	Gln	Ala	Arg	Glu	
				245					250					255		

Lys His Val Lys Glu Val Ile Ser Gln Leu Thr Arg Val His Gly Thr
 260 265 270
 Ser Ser Pro Tyr Lys Gly Leu Asp Leu Ser Lys Leu His Glu Thr Leu
 275 280 285
 Arg Thr His Thr Arg Leu Val Ser Leu Phe Asn Thr Thr Leu Thr Gly
 290 295 300
 Leu His Glu Val Ser Ala Gln Asn Pro Thr Asn Cys Trp Ile Cys Leu
 305 310 315 320
 Pro Leu Asn Phe Arg Pro Tyr Val Ser Ile Pro Val Pro Glu Gln Trp
 325 330 335
 Asn Asn Phe Ser Thr Glu Ile Asn Thr Thr Ser Val Leu Val Gly Pro
 340 345 350
 Leu Val Ser Asn Leu Glu Ile Thr His Thr Ser Asn Leu Thr Cys Val
 355 360 365
 Lys Phe Ser Asn Thr Thr Tyr Thr Thr Asn Ser Gln Cys Ile Arg Trp
 370 375 380
 Val Thr Pro Pro Thr Gln Ile Val Cys Leu Pro Ser Gly Ile Phe Phe
 385 390 395 400
 Val Cys Gly Thr Ser Ala Tyr Arg Cys Leu Asn Gly Ser Ser Glu Ser
 405 410 415
 Met Cys Phe Leu Ser Phe Leu Val Pro Pro Met Thr Ile Tyr Thr Glu
 420 425 430
 Gln Asp Leu Tyr Ser Tyr Val Ile Ser Lys Pro Arg Asn Lys Arg Val
 435 440 445
 Pro Ile Leu Pro Phe Val Ile Gly Ala Gly Val Leu Gly Ala Leu Gly
 450 455 460
 Thr Gly Ile Gly Gly Ile Thr Thr Ser Thr Gln Phe Tyr Tyr Lys Leu
 465 470 475 480
 Ser Gln Glu Leu Asn Gly Asp Met Glu Arg Val Ala Asp Ser Leu Val
 485 490 495
 Thr Leu Gln Asp Gln Leu Asn Ser Leu Ala Ala Val Val Leu Gln Asn
 500 505 510
 Arg Arg Ala Leu Asp Leu Leu Thr Ala Glu Arg Gly Gly Thr Cys Leu
 515 520 525
 Phe Leu Gly Glu Glu Cys Cys Tyr Tyr Val Asn Gln Ser Gly Ile Val
 530 535 540
 Thr Glu Lys Val Lys Glu Ile Arg Asp Arg Ile Gln Arg Arg Ala Glu
 545 550 555 560

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27

Glu Leu Arg Asn Thr Gly Pro Trp Gly Leu Leu Ser Gln Trp Met Pro
 565 570 575
 Trp Ile Leu Pro Phe Leu Gly Pro Leu Ala Ala Ile Ile Leu Leu Leu
 580 585 590
 Leu Phe Gly Pro Cys Ile Phe Asn Leu Leu Val Asn Phe Val Ser Ser
 595 600 605
 Arg Ile Glu Ala Val Lys Leu Gln Met Glu Pro Lys Met Gln Ser Lys
 610 615 620
 Thr Lys Ile Tyr Arg Arg Pro Leu Asp Arg Pro Ala Ser Pro Arg Ser
 625 630 635 640
 Asp Val Asn Asp Ile Lys Gly Thr Pro Pro Glu Glu Ile Ser Ala Ala
 645 650 655
 Gln Pro Leu Leu Arg Pro Asn Ser Ala Gly Ser Ser Xaa Ser Gly Arg
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 Arg Pro Thr Ser Pro Thr Ala Leu Arg Phe Ser Cys Xaa
 675 680 685

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 <212> PRT
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 Tyr Ala Leu Gln Glu Ala Phe Arg Val Tyr Leu Pro Ile Pro Ala Ser
 35 40 45
 Pro Thr Pro Ser Pro Thr Asn Lys Asp Pro Pro Ser Thr Gln Met Val
 50 55 60
 Gln Lys Glu Ile Asp Lys Arg Val Asn Ser Glu Pro Lys Ser Ala Asn
 65 70 75 80
 Ile Pro Gln Leu Xaa Pro Leu Gln Ala Val Gly Gly Arg Glu Phe Gly
 85 90 95
 Pro Ala Arg Val His Val Pro Phe Ser Leu Pro Asp Leu Lys Gln Ile
 100 105 110
 Lys Thr Asp Leu Gly Lys Phe Ser Asp Asn Pro Asp Gly Tyr Ile Asp
 115 120 125
 Val Leu Gln Gly Leu Gly Gln Phe Phe Asp Leu Thr Trp Arg Asp Ile
 130 135 140

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28

Met Ser Leu Leu Asn Gln Thr Leu Thr Pro Asn Glu Arg Ser Ala Thr
 145 150 155 160

Ile Thr Ala Ala Xaa Glu Phe Gly Asp Leu Trp Tyr Leu Ser Gln Val
 165 170 175

Asn Asp Arg Met Thr Thr Glu Glu Arg Glu Xaa Phe Pro Thr Gly Gln
 180 185 190

Gln Ala Val Pro Ser Leu Asp Pro His Trp Asp Thr Glu Ser Glu His
 195 200 205

Gly Asp Trp Cys Cys Arg His Leu Leu Thr Cys Val Leu Glu Gly Leu
 210 215 220

Arg Lys Thr Arg Lys Lys Ser Met Asn Tyr Ser Met Met Ser Thr Ile
 225 230 235 240

Thr Gln Gly Arg Glu Glu Asn Pro Thr Ala Phe Leu Glu Arg Leu Arg
 245 250 255

Glu Ala Leu Arg Lys Arg Ala Ser Leu Ser Pro Asp Ser Ser Glu Gly
 260 265 270

Gln Leu Ile Leu Lys Arg Lys Phe Ile Thr Gln Ser Ala Ala Asp Ile
 275 280 285

Arg Lys Lys Leu Gln Lys Ser Ala Val Gly Pro Glu Gln Asn Leu Glu
 290 295 300

Thr Leu Leu Asn Leu Ala Thr Ser Val Phe Tyr Asn Arg Asp Gln Glu
 305 310 315 320

Glu Gln Ala Glu Gln Asp Lys Arg Asp Xaa Lys Lys Gly His Arg Phe
 325 330 335

Ser His Asp Pro Gln Ala Ser Gly Leu Trp Arg Leu Trp Lys Arg Glu
 340 345 350

Lys Leu Gly Lys Leu Asn Ala Xaa
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 <212> ADN
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26

<210> 38
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<400> 40
ccttcctgt gttattgtgg acatcatt 28

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<210> 43
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<400> 43
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<210> 44
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<210> 45
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29

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